

sional colony of *Eutrochatella acuminata* keeps our enthusiasm warm, and then we discover a colony of that perfect little gem among land shells, *Eutrochatella chrysochasma*, with its pinkish cast and flaming red aperture. The big *Chondropoma shuttleworthi* are quite abundant and we only take the best looking specimens, but the more rare *Chon. sagebieni* is much more shy; we get but a few of them living. *Annularia blaini* is everywhere, and we tell our Cuban guide not to take any more of them. An occasional *Pleurodonte (Thel.) rangelifana* with its commoner cousin *Pl. auricoma* is taken. *Oleacina o. straminea* and the smaller *solidula* along with the species that have the incised lines upon their spires are fairly abundant. Less so are the *Rectoleacina cubensis* and *R. episcopalis*, but they are there to be had for the search. Some one warns the rest that it is getting time to pull out for home, and we reluctantly drop the work and scramble back to the river, an hour at least to go half a mile. In the river we enjoy the luxury of a swim in the cool, clear water, and revive our energies for the long "hike" back.

Wherever the naturalist wanders there is always a beyond that is gilded by imagination and mystery. From a high point we could gaze into a beyond of high sierras among which our native guide pointed out the great Pan de Guajaibon, far away and indistinct as a cloud peak above the mass of mountains. Guajaibon has always been our dream mountain for future conquest. It was visited a half century ago by that most enterprising of Cuban collectors, Charles Wright, but since then it has guarded well its conchological treasures.

DISTRIBUTION OF SOME FRESH WATER SHELLS OF THE ST. JOHN'S RIVER VALLEY IN MAINE, NEW BRUNSWICK AND QUEBEC.

BY OLOF O. NYLANDER.

For many years I have been collecting shells in the valley of the St. John's River and its tributaries, the Aroostook and Fish Rivers in Maine, and Madawaska and Green Rivers in New Brunswick and Quebec. Every tributary has some interesting forms, of which many are peculiar to a single locality. Many of the tributaries of St. John's River are in the forest. It is a lumbermen's field for harvest, and great quantities of logs are floated down these rivers every year. Sawmills large and small are to be found nearly every-

where. The sawdust and other waste is thrown in the water, and is forming extensive deposits in the river and tributaries. It is very destructive to Molluscan and other animal life.

Anodonta marginata Say. Is distributed in the main river and the lakes and tributaries on muddy bottom. Common.

Alasmidonta undulata Say. St. John's River at Fort Kent and Conners. Also in the Aroostook and Fish Rivers. Rare.

Margaritana margaritifera Linné. Is found in the Aroostook River and some of its tributaries. I have not seen *M. margaritifera* in any of the St. John's River tributaries above Grand Falls. If it is living in the upper part of St. John's River it is rare.

Unio complanatus Solander. Generally distributed in the Aroostook and Fish Rivers, rare in the St. John's River. In Témiscouata Lake is a small form of this species that is common in deep water in the lakes of Maine (Fish River lakes).

Sphærium striatinum Lamarck. Common on rocky bottom in Fish River, in St. John's River at Fort Kent, and in Madawaska River at St. Rose.

Ancylus borealis Morse. In 1899 I found five specimens of this rare shell in the St. John's River at Fort Kent.

Lymnæa (Galba) emarginata Say. Second Eagle Lake, Fish River and St. John's River at Fort Kent, abundant on rock bottom feeding on *Confervæ*.

Lymnæa (Galba) emarginata mighelsi Binney. This variety is represented by fine large specimens at Square, Cross, and Portage Lakes. The type of *Lymnæa ampla* Mighels came from Square Lake.

Lymnæa (Galba) emarginata canadensis Sowerby. A large colony was found on rocky bottom on the north side of Mt. Wissic, Témiscouata Lake, Province of Quebec. The colony is located in a partly sheltered cove in water two to ten feet deep or more. Among those found here I have noted certain peculiarities that are common to all species that are found on rocky bottom in more or less sheltered position. Each colony has its peculiar variations and need a geographical name to express their habitat rather than a specific designation of any individual. See F. C. Baker's work on "The Lymnæidæ of North and Middle America."

Physa heterostropha Say. Common in the St. John's River at Fort Kent, also in the Fish and Aroostook Rivers.

Physa ancillaria Say. Common at Square Lake inlet; dredged in Second Eagle Lake and Portage Lake on Fish River. A single specimen was seen at Mt. Wissic, in Temiscouata Lake.

Physa sayii Tappan. A large colony exists in the Caribou stream at Caribou village, Me. A second locality is at the Third Falls on Green River, New Brunswick. The shells are common below the falls and of large size.

Planorbis bicarinatus Say. Common in the St. John's River at Fort Kent, in the First Lake on Green River New Brunswick, and in the Fish and Aroostook Rivers, Maine.

Planorbis bicarinatus aroostookensis Pilsbry. Has only been observed in the towns of Woodland and Caribou, Maine.

Planorbis bicarinatus portagensis Baker. It is apparently a deep water form and is found in Fish River, Maine. Specimens of this variety are also found in First Lake, Green River, New Brunswick.

Planorbis companulatus Say. Common in Fish River Lakes, Maine, and First Lake, Green River, New Brunswick.

Planorbis deflectus Say. Salmon Brook, Aroostook County, Maine, and First Lake, Green River, New Brunswick.

Planorbis trivoleis Say. Is well distributed in the Fish River Lakes and in the Aroostook River Lakes. It is represented in the First Lake, Green River, New Brunswick, by a large form with the whorls somewhat flattened.

Of landshells, *Succinea retusa* Lea is common around Temiscouata Lake.

Polygyra albolabris Say, is common on Mt. Wissic, Temiscouata Lake.

Pyramidula striatella and *Zonitoides arboreus* seem to be common in the Northern part of New Brunswick.

Zoögenitis harpa Say, I have collected near Green Mt. on Green River.

Succinea ovalis Say is common at Grand Falls, New Brunswick.

Polygyra monodon cava Pilsbry was collected at St. Leonards, New Brunswick.

When a complete survey can be made of the St. John's River there will be many interesting varieties or mutations discovered. This survey should be made before the lumber operators and the sawmills have destroyed the most important lakes and tributaries.